

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



SEQUENCE LISTING

<110> Aventis Behring GmbH
<120> Modified cDNA Factor VIII and its Derivatives
<130> 2002/M018-A66
<140> US/10/721,997
<141> 2003-11-26
<160> 34
<170> PatentIn version 3.1
<210> 1
<211> 34
<212> DNA
<213> Artificial Sequence
<220>
<223> Human Factor VIII derivatives
<220>
<221> Forward primer
<222> (1)..(34)
<223>
<400> 1
ggaaccatcg ccagaagtcc ttggaaatct cgcc
34
<210> 2
<211> 34
<212> DNA
<213> Artificial Sequence
<220>
<223> Human Factor VIII derivatives
<220>
<221> Reverse primer
<222> (1)..(34)
<223>
<400> 2
ggcgagattt ccaaggactt ctggcgatgg ttcc
34
<210> 3
<211> 32

<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(32)
<223>

<400> 3
cccaccaaca tgggtggcatg gaagcttatg tc
32

<210> 4
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(32)
<223>

<400> 4
gacataagct tccatgccac catgttggtg gg
32

<210> 5
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(47)
<223>

<400> 5
cagaggaacc ccaactacga cgtaaaaata atgaagaagc ggaagac
47

<210> 6
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(47)
<223>

<400> 6
gtcttccgct tcttcattat ttttacgtcg tagttggggt tcctctg
47

<210> 7
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(42)
<223>

<400> 7
cccaactacg aatgaaaaat gatgaagaag cggaagacta tg
42

<210> 8
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(42)
<223>

<400> 8
catagtcttc cgcttcttca tcatttttca ttcgtagttg gg
42

<210> 9
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(40)
<223>

<400> 9
gaagaagcgg aagactatga tgataatctt actgattctg
40

<210> 10
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(40)
<223>

<400> 10
cagaatcagt aagattatca tcatagtctt ccgcttcttc
40

<210> 11
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(38)
<223>

<400> 11

ggtcagggttt gatgatgacg actctccttc ctttatcc
38

<210> 12
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(38)
<223>

<400> 12
ggataaagga aggagagtcg tcatcatcaa acctgacc
38

<210> 13
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(38)
<223>

<400> 13
cccttagtcc tcgccccctc tgacagaagt tataaaag
38

<210> 14
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(38)
<223>

<400> 14
cttttataac ttctgtcaga gggggcgagg actaaggg
38

<210> 15
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<400> 15
gtccgattta tggcatacac agatgttacc tttaagactc g
41

<210> 16
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(41)
<223>

<400> 16
cgagtcttaa aggtaacatc tgtgtatgcc ataaatcgga c
41

<210> 17
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(37)
<223>

<400> 17
cctttaagac tcgtaaagct attcagcatg aatcagg
37

<210> 18
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(37)
<223>

<400> 18
cctgattcat gctgaatagc ttacgagtc ttaaagg
37

<210> 19
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(46)
<223>

<400> 19
cacactgttg attatattta agaataaagc aagcagacca tataac
46

<210> 20
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(46)
<223>

<400> 20

gttatatggt ctgcttgctt tattcttaaa tataatcaac agtgtg
46

<210> 21
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(40)
<223>

<400> 21
ccctcacgga atcactgatg tctctccttt gtattcaagg
40

<210> 22
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(40)
<223>

<400> 22
ccttgaatac aaaggagaga catcagtgat tccgtgaggg
40

<210> 23
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(38)
<223>

<400> 23
gatgtccgtc ctttgtattc agggagatta ccaaaagg
38

<210> 24
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(38)
<223>

<400> 24
ccttttggtg atctccctga atacaaagga cggacatc
38

<210> 25
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(36)
<223>

<400> 25
ctgtatttga tgagaaccaa agctggtacc tcacag
36

<210> 26
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(36)

<223>

<400> 26
ctgtgaggta ccagctttgg ttctcatcaa atacag
36

<210> 27
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(30)
<223>

<400> 27
ctccccaatc cagatggagt gcagcttgag
30

<210> 28
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(30)
<223>

<400> 28
ctcaagctgc actccatctg gattggggag
30

<210> 29
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>

<221> Forward primer
<222> (1)..(32)
<223>

<400> 29
cagctggagt gcagcttcag gatccagagt tc
32

<210> 30
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(32)
<223>

<400> 30
gaactctgga tcctgaagct gcactccagc tg
32

<210> 31
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Forward primer
<222> (1)..(49)
<223>

<400> 31
cgatggtatc tgctcagcat gaagagcaat gaaaacatcc attctattc
49

<210> 32
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Human Factor VIII derivatives

<220>
<221> Reverse primer
<222> (1)..(49)
<223>

<400> 32
gaatagaatg gatgttttca ttgctcttca tgctgagcag ataccatcg
49

<210> 33
<211> 2114
<212> PRT
<213> Porcine

<400> 33

Ala Ile Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Arg Gln Ser Glu Leu Leu Arg Glu Leu His Val Asp Thr Arg Phe Pro
20 25 30

Ala Thr Ala Pro Gly Ala Leu Pro Leu Gly Pro Ser Val Leu Tyr Lys
35 40 45

Lys Thr Val Phe Val Glu Phe Thr Asp Gln Leu Phe Ser Val Ala Arg
50 55 60

Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu
65 70 75 80

Val Tyr Asp Thr Val Val Val Thr Leu Lys Asn Met Ala Ser His Pro
85 90 95

Val Ser Leu His Ala Val Gly Val Ser Phe Trp Lys Ser Ser Glu Gly
100 105 110

Ala Glu Tyr Glu Asp His Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys
115 120 125

Val Leu Pro Gly Lys Ser Gln Thr Tyr Val Trp Gln Val Leu Lys Glu
130 135 140

Asn Gly Pro Thr Ala Ser Asp Pro Pro Cys Leu Thr Tyr Ser Tyr Leu
145 150 155 160

Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala
165 170 175

Leu Leu Val Cys Arg Glu Gly Ser Leu Thr Arg Glu Arg Thr Gln Asn
180 185 190

Leu His Glu Phe Val Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser
195 200 205

Trp His Ser Ala Arg Asn Asp Ser Trp Thr Arg Ala Met Asp Pro Ala
210 215 220

Pro Ala Arg Ala Gln Pro Ala Met His Thr Val Asn Gly Tyr Val Asn
225 230 235 240

Arg Ser Leu Pro Gly Leu Ile Gly Cys His Lys Lys Ser Val Tyr Trp
245 250 255

His Val Ile Gly Met Gly Thr Ser Pro Glu Val His Ser Ile Phe Leu
260 265 270

Glu Gly His Thr Phe Leu Val Arg His His Arg Gln Ala Ser Leu Glu
275 280 285

Ile Ser Pro Leu Thr Phe Leu Thr Ala Gln Thr Phe Leu Met Asp Leu
290 295 300

Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His His His Gly Gly
305 310 315 320

Met Glu Ala His Val Arg Val Glu Ser Cys Ala Glu Glu Pro Gln Leu
325 330 335

Arg Arg Lys Ala Asp Glu Glu Glu Asp Tyr Asp Asp Asn Leu Tyr Asp
340 345 350

Ser Asp Met Asp Val Val Arg Leu Asp Gly Asp Asp Val Ser Pro Phe
355 360 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
370 375 380

Tyr Ile Ser Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Ala Val Pro
385 390 395 400

Ser Pro Ser Asp Arg Ser Tyr Lys Ser Leu Tyr Leu Asn Ser Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Ala Arg Phe Val Ala Tyr Thr
420 425 430

Asp Val Thr Phe Lys Thr Arg Lys Ala Ile Pro Tyr Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Lys Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Ser Ala Leu His Pro Gly Arg Leu Leu Lys Gly Trp Lys
485 490 495

His Leu Lys Asp Met Pro Ile Leu Pro Gly Glu Thr Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Ser Ile Asn Leu Glu Lys Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Met Met Ser Asp Lys Arg Asn Val Ile Leu Phe
565 570 575

Ser Val Phe Asp Glu Asn Gln Ser Trp Tyr Leu Ala Glu Asn Ile Gln
580 585 590

Arg Phe Leu Pro Asn Pro Asp Gly Leu Gln Pro Gln Asp Pro Glu Phe
595 600 605

Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
610 615 620

Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
625 630 635 640

Ser Val Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
645 650 655

Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
660 665 670

Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
675 680 685

Val Leu Gly Cys His Asn Ser Asp Leu Arg Asn Arg Gly Met Thr Ala
690 695 700

Leu Leu Lys Val Tyr Ser Cys Asp Arg Asp Ile Gly Asp Tyr Tyr Asp
705 710 715 720

Asn Thr Tyr Glu Asp Ile Pro Gly Phe Leu Leu Ser Gly Lys Asn Val
725 730 735

Ile Glu Pro Arg Ser Phe Ala Gln Asn Ser Arg Pro Pro Ser Ala Ser
740 745 750

Gln Lys Gln Phe Gln Thr Ile Thr Ser Pro Glu Asp Asp Val Glu Leu
755 760 765

Asp Pro Gln Ser Gly Glu Arg Thr Gln Ala Leu Glu Glu Leu Ser Val
770 775 780

Pro Ser Gly Asp Gly Ser Met Leu Leu Gly Gln Asn Pro Ala Pro His
785 790 795 800

Gly Ser Ser Ser Ser Asp Leu Gln Glu Ala Arg Asn Glu Ala Asp Asp

805

810

815

Tyr Leu Pro Gly Ala Arg Glu Arg Asn Thr Ala Pro Ser Ala Ala Ala
820 825 830

Arg Leu Arg Pro Glu Leu His His Ser Ala Glu Arg Val Leu Thr Pro
835 840 845

Glu Pro Glu Lys Glu Leu Lys Lys Leu Asp Ser Lys Met Ser Ser Ser
850 855 860

Ser Asp Leu Leu Lys Thr Ser Pro Thr Ile Pro Ser Asp Thr Leu Ser
865 870 875 880

Ala Glu Thr Glu Arg Thr His Ser Leu Gly Pro Pro His Pro Gln Val
885 890 895

Asn Phe Arg Ser Gln Leu Gly Ala Ile Val Leu Gly Lys Asn Ser Ser
900 905 910

His Phe Ile Gly Ala Gly Val Pro Leu Gly Ser Thr Glu Glu Asp His
915 920 925

Glu Ser Ser Leu Gly Glu Asn Val Ser Pro Val Glu Ser Asp Gly Ile
930 935 940

Phe Glu Lys Glu Arg Ala His Gly Pro Ala Ser Leu Thr Lys Asp Asp
945 950 955 960

Val Leu Phe Lys Val Asn Ile Ser Leu Val Lys Thr Asn Lys Ala Arg
965 970 975

Val Tyr Leu Lys Thr Asn Arg Lys Ile His Ile Asp Asp Ala Ala Leu
980 985 990

Leu Thr Glu Asn Arg Ala Ser Ala Thr Phe Met Asp Lys Asn Thr Thr
995 1000 1005

Ala Ser Gly Leu Asn His Val Ser Asn Trp Ile Lys Gly Pro Leu
1010 1015 1020

Gly Lys Asn Pro Leu Ser Ser Glu Arg Gly Pro Ser Pro Glu Leu
1025 1030 1035

Leu Thr Ser Ser Gly Ser Gly Lys Ser Val Lys Gly Gln Ser Ser
1040 1045 1050

Gly Gln Gly Arg Ile Arg Val Ala Val Glu Glu Glu Glu Leu Ser
1055 1060 1065

Lys Gly Lys Glu Met Met Leu Pro Asn Ser Glu Leu Thr Phe Leu
1070 1075 1080

Thr Asn Ser Ala Asp Val Gln Gly Asn Asp Thr His Ser Gln Gly
1085 1090 1095

Lys Lys Ser Arg Glu Glu Met Glu Arg Arg Glu Lys Leu Val Gln
1100 1105 1110

Glu Lys Val Asp Leu Pro Gln Val Tyr Thr Ala Thr Gly Thr Lys
1115 1120 1125

Asn Phe Leu Arg Asn Ile Phe His Gln Ser Thr Glu Pro Ser Val
1130 1135 1140

Glu Gly Phe Asp Gly Gly Ser His Ala Pro Val Pro Gln Asp Ser
1145 1150 1155

Arg Ser Leu Asn Asp Ser Ala Glu Arg Ala Glu Thr His Ile Ala
1160 1165 1170

His Phe Ser Ala Ile Arg Glu Glu Ala Pro Leu Glu Ala Pro Gly
1175 1180 1185

Asn Arg Thr Gly Pro Gly Pro Arg Ser Ala Val Pro Arg Arg Val
1190 1195 1200

Lys Gln Ser Leu Lys Gln Ile Arg Leu Pro Leu Glu Glu Ile Lys
1205 1210 1215

Pro Glu Arg Gly Val Val Leu Asn Ala Thr Ser Thr Arg Trp Ser
1220 1225 1230

Glu Ser Ser Pro Ile Leu Gln Gly Ala Lys Arg Asn Asn Leu Ser	1235	1240	1245
Leu Pro Phe Leu Thr Leu Glu Met Ala Gly Gly Gln Gly Lys Ile	1250	1255	1260
Ser Ala Leu Gly Lys Ser Ala Ala Gly Pro Leu Ala Ser Gly Lys	1265	1270	1275
Leu Glu Lys Ala Val Leu Ser Ser Ala Gly Leu Ser Glu Ala Ser	1280	1285	1290
Gly Lys Ala Glu Phe Leu Pro Lys Val Arg Val His Arg Glu Asp	1295	1300	1305
Leu Leu Pro Gln Lys Thr Ser Asn Val Ser Cys Ala His Gly Asp	1310	1315	1320
Leu Gly Gln Glu Ile Phe Leu Gln Lys Thr Arg Gly Pro Val Asn	1325	1330	1335
Leu Asn Lys Val Asn Arg Pro Gly Arg Thr Pro Ser Lys Leu Leu	1340	1345	1350
Gly Pro Pro Met Pro Lys Glu Trp Glu Ser Leu Glu Lys Ser Pro	1355	1360	1365
Lys Ser Thr Ala Leu Arg Thr Lys Asp Ile Ile Ser Leu Pro Leu	1370	1375	1380
Asp Arg His Glu Ser Asn His Ser Ile Ala Ala Lys Asn Glu Gly	1385	1390	1395
Gln Ala Glu Thr Gln Arg Glu Ala Ala Trp Thr Lys Gln Gly Gly	1400	1405	1410
Pro Gly Arg Leu Cys Ala Pro Lys Pro Pro Val Leu Arg Arg His	1415	1420	1425
Gln Arg Asp Ile Ser Leu Pro Thr Phe Gln Pro Glu Glu Asp Lys	1430	1435	1440

Met	Asp	Tyr	Asp	Asp	Ile	Phe	Ser	Thr	Glu	Thr	Lys	Gly	Glu	Asp
1445						1450					1455			
Phe	Asp	Ile	Tyr	Gly	Glu	Asp	Glu	Asn	Gln	Asp	Pro	Arg	Ser	Phe
1460						1465					1470			
Gln	Lys	Arg	Thr	Arg	His	Tyr	Phe	Ile	Ala	Ala	Val	Glu	Gln	Leu
1475						1480					1485			
Trp	Asp	Tyr	Gly	Met	Ser	Glu	Ser	Pro	Arg	Ala	Leu	Arg	Asn	Arg
1490						1495					1500			
Ala	Gln	Asn	Gly	Glu	Val	Pro	Arg	Phe	Lys	Lys	Val	Val	Phe	Arg
1505						1510					1515			
Glu	Phe	Ala	Asp	Gly	Ser	Phe	Thr	Gln	Pro	Ser	Tyr	Arg	Gly	Glu
1520						1525					1530			
Leu	Asn	Lys	His	Leu	Gly	Leu	Leu	Gly	Pro	Tyr	Ile	Arg	Ala	Glu
1535						1540					1545			
Val	Glu	Asp	Asn	Ile	Met	Val	Thr	Phe	Lys	Asn	Gln	Ala	Ser	Arg
1550						1555					1560			
Pro	Tyr	Ser	Phe	Tyr	Ser	Ser	Leu	Ile	Ser	Tyr	Pro	Asp	Asp	Gln
1565						1570					1575			
Glu	Gln	Gly	Ala	Glu	Pro	Arg	His	Asn	Phe	Val	Gln	Pro	Asn	Glu
1580						1585					1590			
Thr	Arg	Thr	Tyr	Phe	Trp	Lys	Val	Gln	His	His	Met	Ala	Pro	Thr
1595						1600					1605			
Glu	Asp	Glu	Phe	Asp	Cys	Lys	Ala	Trp	Ala	Tyr	Phe	Ser	Asp	Val
1610						1615					1620			
Asp	Leu	Glu	Lys	Asp	Val	His	Ser	Gly	Leu	Ile	Gly	Pro	Leu	Leu
1625						1630					1635			
Ile	Cys	Arg	Ala	Asn	Thr	Leu	Asn	Ala	Ala	His	Gly	Arg	Gln	Val

1640	1645	1650
Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr		
1655	1660	1665
Lys Ser Trp Tyr Phe Thr Glu Asn Val Glu Arg Asn Cys Arg Ala		
1670	1675	1680
Pro Cys His Leu Gln Met Glu Asp Pro Thr Leu Lys Glu Asn Tyr		
1685	1690	1695
Arg Phe His Ala Ile Asn Gly Tyr Val Met Asp Thr Leu Pro Gly		
1700	1705	1710
Leu Val Met Ala Gln Asn Gln Arg Ile Arg Trp Tyr Leu Leu Ser		
1715	1720	1725
Met Gly Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His		
1730	1735	1740
Val Phe Ser Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Val Tyr		
1745	1750	1755
Asn Leu Tyr Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser		
1760	1765	1770
Lys Val Gly Ile Trp Arg Ile Glu Cys Leu Ile Gly Glu His Leu		
1775	1780	1785
Gln Ala Gly Met Ser Thr Thr Phe Leu Val Tyr Ser Lys Glu Cys		
1790	1795	1800
Gln Ala Pro Leu Gly Met Ala Ser Gly Arg Ile Arg Asp Phe Gln		
1805	1810	1815
Ile Thr Ala Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala		
1820	1825	1830
Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Asp		
1835	1840	1845

Pro	His	Ser	Trp	Ile	Lys	Val	Asp	Leu	Leu	Ala	Pro	Met	Ile	Ile
1850						1855					1860			
His	Gly	Ile	Met	Thr	Gln	Gly	Ala	Arg	Gln	Lys	Phe	Ser	Ser	Leu
1865						1870					1875			
Tyr	Ile	Ser	Gln	Phe	Ile	Ile	Met	Tyr	Ser	Leu	Asp	Gly	Arg	Asn
1880						1885					1890			
Trp	Gln	Ser	Tyr	Arg	Gly	Asn	Ser	Thr	Gly	Thr	Leu	Met	Val	Phe
1895						1900					1905			
Phe	Gly	Asn	Val	Asp	Ala	Ser	Gly	Ile	Lys	His	Asn	Ile	Phe	Asn
1910						1915					1920			
Pro	Pro	Ile	Val	Ala	Arg	Tyr	Ile	Arg	Leu	His	Pro	Thr	His	Tyr
1925						1930					1935			
Ser	Ile	Arg	Ser	Thr	Leu	Arg	Met	Glu	Leu	Met	Gly	Cys	Asp	Leu
1940						1945					1950			
Asn	Ser	Cys	Ser	Met	Pro	Leu	Gly	Met	Gln	Asn	Lys	Ala	Ile	Ser
1955						1960					1965			
Asp	Ser	Gln	Ile	Thr	Ala	Ser	Ser	His	Leu	Ser	Asn	Ile	Phe	Ala
1970						1975					1980			
Thr	Trp	Ser	Pro	Ser	Gln	Ala	Arg	Leu	His	Leu	Gln	Gly	Arg	Thr
1985						1990					1995			
Asn	Ala	Trp	Arg	Pro	Arg	Val	Ser	Ser	Ala	Glu	Glu	Trp	Leu	Gln
2000						2005					2010			
Val	Asp	Leu	Gln	Lys	Thr	Val	Lys	Val	Thr	Gly	Ile	Thr	Thr	Gln
2015						2020					2025			
Gly	Val	Lys	Ser	Leu	Leu	Ser	Ser	Met	Tyr	Val	Lys	Glu	Phe	Leu
2030						2035					2040			
Val	Ser	Ser	Ser	Gln	Asp	Gly	Arg	Arg	Trp	Thr	Leu	Phe	Leu	Gln
2045						2050					2055			

Asp Gly His Thr Lys Val Phe Gln Gly Asn Gln Asp Ser Ser Thr
2060 2065 2070

Pro Val Val Asn Ala Leu Asp Pro Pro Leu Phe Thr Arg Tyr Leu
2075 2080 2085

Arg Ile His Pro Thr Ser Trp Ala Gln His Ile Ala Leu Arg Leu
2090 2095 2100

Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
2105 2110

<210> 34

<211> 2332

<212> PRT

<213> Homo sapiens

<400> 34

Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
1 5 10 15

Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
20 25 30

Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
195 200 205

His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
210 215 220

Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
225 230 235 240

Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
245 250 255

Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
260 265 270

Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
275 280 285

Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
290 295 300

Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
305 310 315 320

Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
325 330 335

Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
340 345 350

Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
355 360 365

Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
370 375 380

Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
385 390 395 400

Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
405 410 415

Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
420 425 430

Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
435 440 445

Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
450 455 460

Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
465 470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
485 490 495

His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
500 505 510

Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
515 520 525

Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
530 535 540

Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
545 550 555 560

Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe

[illegible]

Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785 790 795 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
805 810 815

Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
820 825 830

Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
835 840 845

Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly
850 855 860

Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys Val Ser Ser
865 870 875 880

Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala
885 890 895

Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met Pro Val His
900 905 910

Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
915 920 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
930 935 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
945 950 955 960

Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
965 970 975

Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys
980 985 990

Val Ser Ile Ser Leu Leu Lys Thr Asn Lys Thr Ser Asn Asn Ser Ala
995 1000 1005

Thr	Asn	Arg	Lys	Thr	His	Ile	Asp	Gly	Pro	Ser	Leu	Leu	Ile	Glu
1010						1015					1020			
Asn	Ser	Pro	Ser	Val	Trp	Gln	Asn	Ile	Leu	Glu	Ser	Asp	Thr	Glu
1025						1030					1035			
Phe	Lys	Lys	Val	Thr	Pro	Leu	Ile	His	Asp	Arg	Met	Leu	Met	Asp
1040						1045					1050			
Lys	Asn	Ala	Thr	Ala	Leu	Arg	Leu	Asn	His	Met	Ser	Asn	Lys	Thr
1055						1060					1065			
Thr	Ser	Ser	Lys	Asn	Met	Glu	Met	Val	Gln	Gln	Lys	Lys	Glu	Gly
1070						1075					1080			
Pro	Ile	Pro	Pro	Asp	Ala	Gln	Asn	Pro	Asp	Met	Ser	Phe	Phe	Lys
1085						1090					1095			
Met	Leu	Phe	Leu	Pro	Glu	Ser	Ala	Arg	Trp	Ile	Gln	Arg	Thr	His
1100						1105					1110			
Gly	Lys	Asn	Ser	Leu	Asn	Ser	Gly	Gln	Gly	Pro	Ser	Pro	Lys	Gln
1115						1120					1125			
Leu	Val	Ser	Leu	Gly	Pro	Glu	Lys	Ser	Val	Glu	Gly	Gln	Asn	Phe
1130						1135					1140			
Leu	Ser	Glu	Lys	Asn	Lys	Val	Val	Val	Gly	Lys	Gly	Glu	Phe	Thr
1145						1150					1155			
Lys	Asp	Val	Gly	Leu	Lys	Glu	Met	Val	Phe	Pro	Ser	Ser	Arg	Asn
1160						1165					1170			
Leu	Phe	Leu	Thr	Asn	Leu	Asp	Asn	Leu	His	Glu	Asn	Asn	Thr	His
1175						1180					1185			
Asn	Gln	Glu	Lys	Lys	Ile	Gln	Glu	Glu	Ile	Glu	Lys	Lys	Glu	Thr
1190						1195					1200			
Leu	Ile	Gln	Glu	Asn	Val	Val	Leu	Pro	Gln	Ile	His	Thr	Val	Thr
1205						1210					1215			

Gly Thr	Lys Asn Phe Met	Lys	Asn Leu Phe Leu Leu	Ser Thr Arg
1220		1225		1230
Gln Asn	Val Glu Gly Ser Tyr	Asp Gly Ala Tyr Ala	Pro Val Leu	
1235		1240	1245	
Gln Asp	Phe Arg Ser Leu Asn	Asp Ser Thr Asn Arg	Thr Lys Lys	
1250		1255	1260	
His Thr	Ala His Phe Ser Lys	Lys Gly Glu Glu Glu	Asn Leu Glu	
1265		1270	1275	
Gly Leu	Gly Asn Gln Thr Lys	Gln Ile Val Glu Lys	Tyr Ala Cys	
1280		1285	1290	
Thr Thr	Arg Ile Ser Pro Asn	Thr Ser Gln Gln Asn	Phe Val Thr	
1295		1300	1305	
Gln Arg	Ser Lys Arg Ala Leu	Lys Gln Phe Arg Leu	Pro Leu Glu	
1310		1315	1320	
Glu Thr	Glu Leu Glu Lys Arg	Ile Ile Val Asp Asp	Thr Ser Thr	
1325		1330	1335	
Gln Trp	Ser Lys Asn Met Lys	His Leu Thr Pro Ser	Thr Leu Thr	
1340		1345	1350	
Gln Ile	Asp Tyr Asn Glu Lys	Glu Lys Gly Ala Ile	Thr Gln Ser	
1355		1360	1365	
Pro Leu	Ser Asp Cys Leu Thr	Arg Ser His Ser Ile	Pro Gln Ala	
1370		1375	1380	
Asn Arg	Ser Pro Leu Pro Ile	Ala Lys Val Ser Ser	Phe Pro Ser	
1385		1390	1395	
Ile Arg	Pro Ile Tyr Leu Thr	Arg Val Leu Phe Gln	Asp Asn Ser	
1400		1405	1410	
Ser His	Leu Pro Ala Ala Ser	Tyr Arg Lys Lys Asp	Ser Gly Val	

1415	1420	1425
Gln Glu Ser Ser His Phe Leu Gln Gly Ala Lys Lys Asn Asn Leu		
1430	1435	1440
Ser Leu Ala Ile Leu Thr Leu Glu Met Thr Gly Asp Gln Arg Glu		
1445	1450	1455
Val Gly Ser Leu Gly Thr Ser Ala Thr Asn Ser Val Thr Tyr Lys		
1460	1465	1470
Lys Val Glu Asn Thr Val Leu Pro Lys Pro Asp Leu Pro Lys Thr		
1475	1480	1485
Ser Gly Lys Val Glu Leu Leu Pro Lys Val His Ile Tyr Gln Lys		
1490	1495	1500
Asp Leu Phe Pro Thr Glu Thr Ser Asn Gly Ser Pro Gly His Leu		
1505	1510	1515
Asp Leu Val Glu Gly Ser Leu Leu Gln Gly Thr Glu Gly Ala Ile		
1520	1525	1530
Lys Trp Asn Glu Ala Asn Arg Pro Gly Lys Val Pro Phe Leu Arg		
1535	1540	1545
Val Ala Thr Glu Ser Ser Ala Lys Thr Pro Ser Lys Leu Leu Asp		
1550	1555	1560
Pro Leu Ala Trp Asp Asn His Tyr Gly Thr Gln Ile Pro Lys Glu		
1565	1570	1575
Glu Trp Lys Ser Gln Glu Lys Ser Pro Glu Lys Thr Ala Phe Lys		
1580	1585	1590
Lys Lys Asp Thr Ile Leu Ser Leu Asn Ala Cys Glu Ser Asn His		
1595	1600	1605
Ala Ile Ala Ala Ile Asn Glu Gly Gln Asn Lys Pro Glu Ile Glu		
1610	1615	1620

Val	Thr	Trp	Ala	Lys	Gln	Gly	Arg	Thr	Glu	Arg	Leu	Cys	Ser	Gln
1625						1630					1635			
Asn	Pro	Pro	Val	Leu	Lys	Arg	His	Gln	Arg	Glu	Ile	Thr	Arg	Thr
1640						1645					1650			
Thr	Leu	Gln	Ser	Asp	Gln	Glu	Glu	Ile	Asp	Tyr	Asp	Asp	Thr	Ile
1655						1660					1665			
Ser	Val	Glu	Met	Lys	Lys	Glu	Asp	Phe	Asp	Ile	Tyr	Asp	Glu	Asp
1670						1675					1680			
Glu	Asn	Gln	Ser	Pro	Arg	Ser	Phe	Gln	Lys	Lys	Thr	Arg	His	Tyr
1685						1690					1695			
Phe	Ile	Ala	Ala	Val	Glu	Arg	Leu	Trp	Asp	Tyr	Gly	Met	Ser	Ser
1700						1705					1710			
Ser	Pro	His	Val	Leu	Arg	Asn	Arg	Ala	Gln	Ser	Gly	Ser	Val	Pro
1715						1720					1725			
Gln	Phe	Lys	Lys	Val	Val	Phe	Gln	Glu	Phe	Thr	Asp	Gly	Ser	Phe
1730						1735					1740			
Thr	Gln	Pro	Leu	Tyr	Arg	Gly	Glu	Leu	Asn	Glu	His	Leu	Gly	Leu
1745						1750					1755			
Leu	Gly	Pro	Tyr	Ile	Arg	Ala	Glu	Val	Glu	Asp	Asn	Ile	Met	Val
1760						1765					1770			
Thr	Phe	Arg	Asn	Gln	Ala	Ser	Arg	Pro	Tyr	Ser	Phe	Tyr	Ser	Ser
1775						1780					1785			
Leu	Ile	Ser	Tyr	Glu	Glu	Asp	Gln	Arg	Gln	Gly	Ala	Glu	Pro	Arg
1790						1795					1800			
Lys	Asn	Phe	Val	Lys	Pro	Asn	Glu	Thr	Lys	Thr	Tyr	Phe	Trp	Lys
1805						1810					1815			
Val	Gln	His	His	Met	Ala	Pro	Thr	Lys	Asp	Glu	Phe	Asp	Cys	Lys
1820						1825					1830			

Ala Trp	Ala Tyr Phe Ser Asp	Val Asp Leu Glu Lys	Asp Val His
1835	1840	1845	
Ser Gly	Leu Ile Gly Pro Leu	Leu Val Cys His Thr	Asn Thr Leu
1850	1855	1860	
Asn Pro	Ala His Gly Arg Gln	Val Thr Val Gln Glu	Phe Ala Leu
1865	1870	1875	
Phe Phe	Thr Ile Phe Asp Glu	Thr Lys Ser Trp Tyr	Phe Thr Glu
1880	1885	1890	
Asn Met	Glu Arg Asn Cys Arg	Ala Pro Cys Asn Ile	Gln Met Glu
1895	1900	1905	
Asp Pro	Thr Phe Lys Glu Asn	Tyr Arg Phe His Ala	Ile Asn Gly
1910	1915	1920	
Tyr Ile	Met Asp Thr Leu Pro	Gly Leu Val Met Ala	Gln Asp Gln
1925	1930	1935	
Arg Ile	Arg Trp Tyr Leu Leu	Ser Met Gly Ser Asn	Glu Asn Ile
1940	1945	1950	
His Ser	Ile His Phe Ser Gly	His Val Phe Thr Val	Arg Lys Lys
1955	1960	1965	
Glu Glu	Tyr Lys Met Ala Leu	Tyr Asn Leu Tyr Pro	Gly Val Phe
1970	1975	1980	
Glu Thr	Val Glu Met Leu Pro	Ser Lys Ala Gly Ile	Trp Arg Val
1985	1990	1995	
Glu Cys	Leu Ile Gly Glu His	Leu His Ala Gly Met	Ser Thr Leu
2000	2005	2010	
Phe Leu	Val Tyr Ser Asn Lys	Cys Gln Thr Pro Leu	Gly Met Ala
2015	2020	2025	
Ser Gly	His Ile Arg Asp Phe	Gln Ile Thr Ala Ser	Gly Gln Tyr
2030	2035	2040	

Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr Ser Gly Ser
2045 2050 2055

Ile Asn Ala Trp Ser Thr Lys Glu Pro Phe Ser Trp Ile Lys Val
2060 2065 2070

Asp Leu Leu Ala Pro Met Ile Ile His Gly Ile Lys Thr Gln Gly
2075 2080 2085

Ala Arg Gln Lys Phe Ser Ser Leu Tyr Ile Ser Gln Phe Ile Ile
2090 2095 2100

Met Tyr Ser Leu Asp Gly Lys Lys Trp Gln Thr Tyr Arg Gly Asn
2105 2110 2115

Ser Thr Gly Thr Leu Met Val Phe Phe Gly Asn Val Asp Ser Ser
2120 2125 2130

Gly Ile Lys His Asn Ile Phe Asn Pro Pro Ile Ile Ala Arg Tyr
2135 2140 2145

Ile Arg Leu His Pro Thr His Tyr Ser Ile Arg Ser Thr Leu Arg
2150 2155 2160

Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys Ser Met Pro Leu
2165 2170 2175

Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile Thr Ala Ser
2180 2185 2190

Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser Lys Ala
2195 2200 2205

Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val
2210 2215 2220

Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met
2225 2230 2235

Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr

2240

2245

2250

Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly
2255 2260 2265

His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe
2270 2275 2280

Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp
2285 2290 2295

Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp
2300 2305 2310

Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala
2315 2320 2325

Gln Asp Leu Tyr
2330